User's manual

Mini Wireless-G USB 2.0 Network Adapter

HWU54G

HI-SPEED SERIES 54G

HAWKING® TECHNOLOGY

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LIMITED WARRANTY

Hawking Technology guarantees that every HWU54G Mini Wireless-G USB Network Adapter is free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communications Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 2.5cm (1 inch) during normal operation.

Federal Communications Commission (FCC) RF Exposure Requirements

SAR compliance has been established in the laptop computer(s) configurations with PCMCIA slot on the side near the center, as tested in the application for Certification, and can be used in laptop computer(s) with substantially similar physical dimensions, construction, and electrical and RF characteristics. Use in other devices such a PDAs or lappads is not authorized. This transmitter is restricted for use with the specific antenna(s) tested in the application for Certification. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)
The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

EU Countries Intended for Use

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

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1 Introduction

Thank you for purchasing the Hawking Hi-Speed 802.11g Wireless LAN Mini USB Adapter. This USB Adapter is designed to comply with the IEEE 802.11g Wireless LAN standard and is small enough to take with you in your pocket or keychain. The HWU54G is compatible with both laptops and desktops.

This adapter supports 64/128/256-bit WEP data encryption that protects your wireless network from outside intruders. It also supports the latest in wireless security, WPA (Wi-Fi Protected Access) which combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. WPA enables client authentication and key verification, ensuring that your wireless environment is controlled and secured. This adapter has a built-in AES engine which ensures the highest degree of security and authenticity for digital information and is the most advanced solution defined by IEEE 802.11i for WiFi security.

The Hawking HWU54G is a portable, Hi-Speed, WiFi adapter that you can take with you anywhere you go.

1.1 Features

- Complies with the IEEE 802.11b and IEEE 802.11g 2.4GHz standards.
- Up to 54Mbps data transfer rate.
- Support 64/128/256-bit WEP, WPA (TKIP, IEEE 802.1x) and AES functions for high level of security.
- Supports Software AP function, which turns the wireless station into a wireless AP.
- Complies with IEEE 802.11d country roaming standard.
- Supports the most popular operating systems: Windows 98SE/Me/2000/XP.
- Supports USB 2.0/1.1/1.0 interface.
- Portable and mini-size design.
- Suitable for Any Notebook or Desktop PC.

1.2 Specifications

- Standard: IEEE 802.11g/b
- Bus Type: USB 2.0 Type A
- Frequency Band: 2.4000~2.4835GHz (Industrial Scientific Medical Band)
- Modulation: OFDM with BPSK, QPSK, 16QAM, 64QAM (11g)

  BPSK, QPSK, CCK (11b)
- Data Rate: 54/48/36/24/18/12/11/9/6/5.5/2/1Mbps auto fallback
- Security: 64/128/256-bit WEP Data Encryption, WPA (IEEE 802.1x with TKIP) and AES
- Antenna: Internal Antenna

- Drivers: Windows 98/SE/Me/2000/XP/2003 Server
- LED: Link/Activity
- Transmit Power: 16dBm (Typical)

- Dimension: 9mm(H) x 27(W) x 87(D)
- Temperature: 32~131°F (0 ~55°C)
- Humidity: 0-95% (Non Condensing)
- Certification: FCC, CE

1.3 Package Contents

Before you begin the installation, please check the items of your package. The package should include the following items:

- One Hi-Speed 54g WiFi USB Adapter
- One USB 2.0 Extension Cable (100 cm)
- One Quick Installation Guide
- One CD (Driver/Install Wizard/Manual)

If any of the above items is missing, contact your supplier as soon as possible.

2 Installation Procedure

Before you proceed with the installation, please notice following descriptions.

Note1: ***Please do not install the USB adapter into your computer before installing the software program from the CD.***

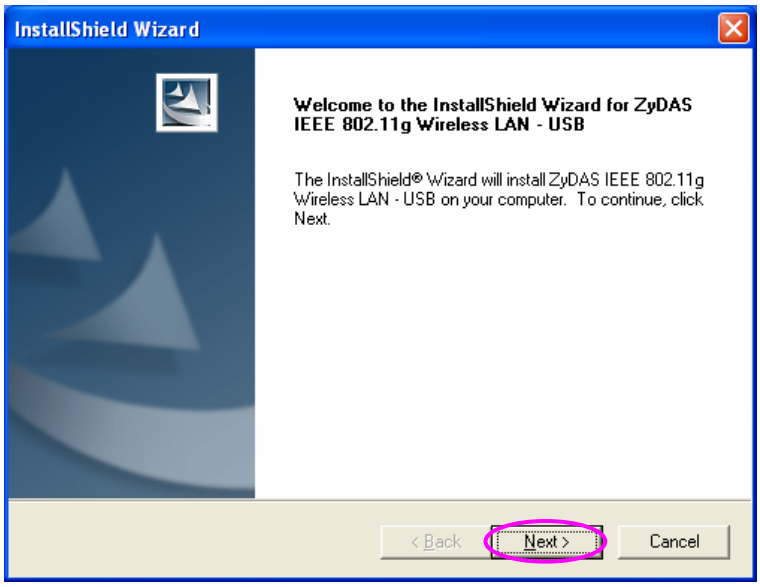
Note2: ***The following installation was operated in Windows XP. (Procedures are similar for Windows 98SE/Me/2000/2003 Server.)***

Note3: ***If you have previously installed a wireless adapter card or adapter, please uninstall the driver and utility.***

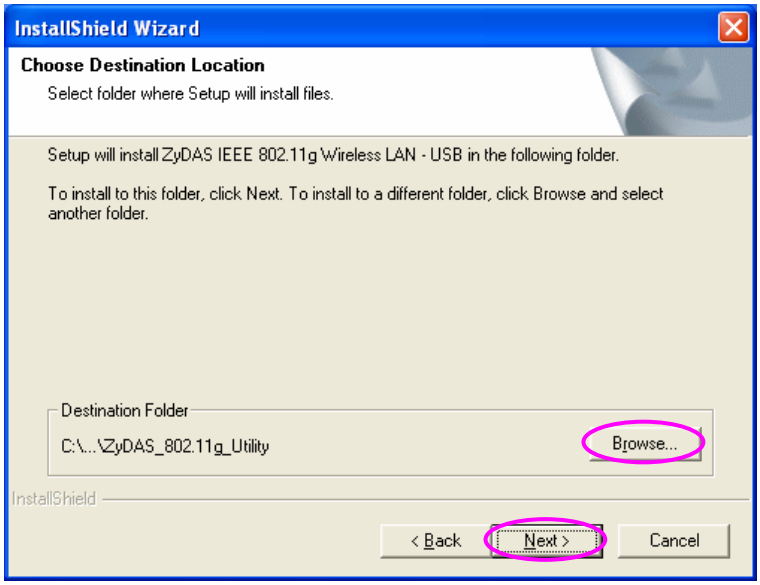
Please follow the instructions below to install the USB Adapter.

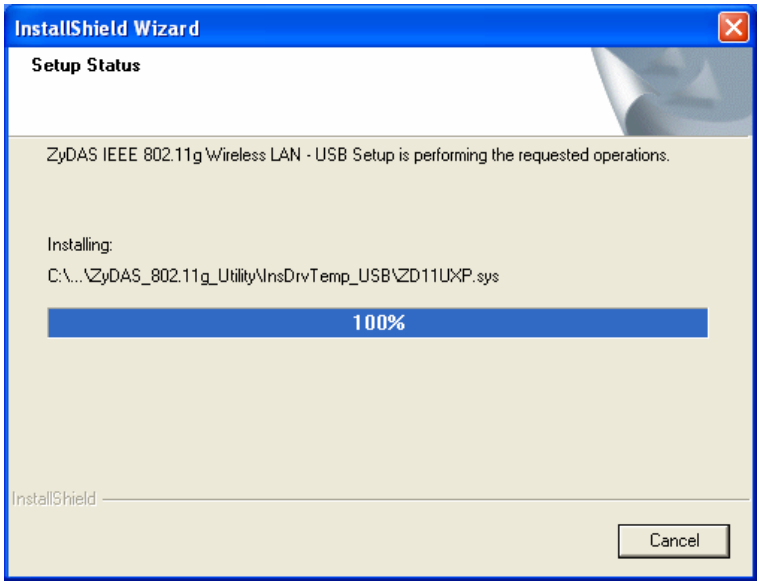
I. Install the Configuration Utility

A. Insert the Installation CD to your CD-ROM Drive. Execute the “setup” program.

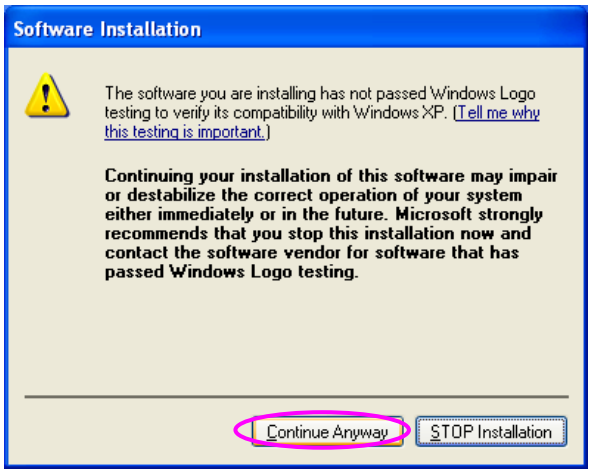

InstallShield Wizard
Welcome to the InstallShield Wizard for ZyDAS IEEE 802.11g Wireless LAN - USB
The InstallShield® Wizard will install ZyDAS IEEE 802.11g Wireless LAN - USB on your computer. To continue, click Next.
< Back
Next >
Cancel

B. If you want to install the software program in another location, click “Browser” and select an alternative destination. Then, click “Next”.


InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install ZyDAS IEEE 802.11g Wireless LAN - USB in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\...\ZyDAS_802.11g_Utility
Browse...
InstallShield
< Back
Next >
Cancel



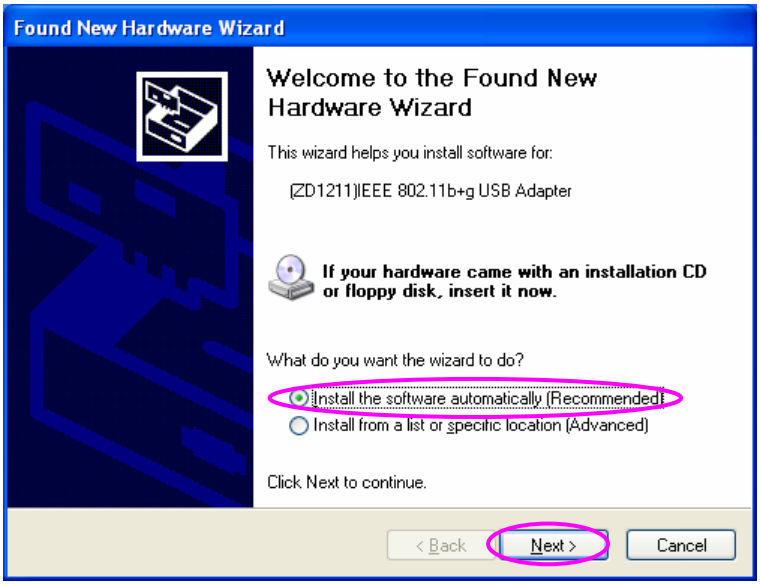
c. Click “Continue Anyway” to finish the installation.


Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

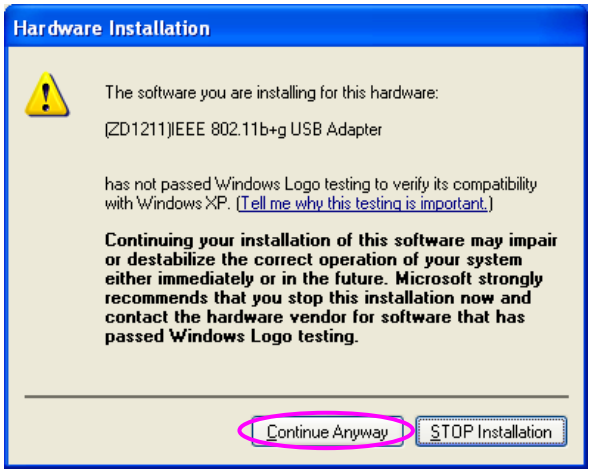
II. Install the USB Adapter

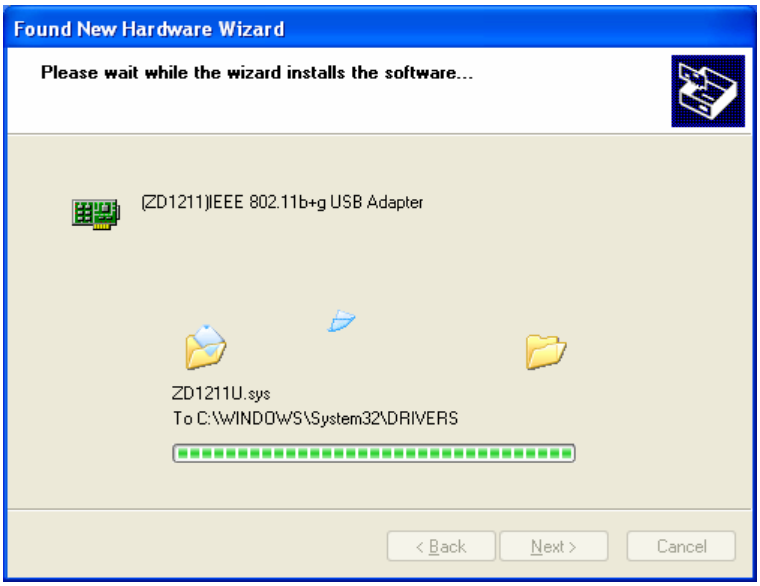
A. Plug the USB Adapter into the USB port of your computer.

B. The “Found New Hardware Wizard” is displayed, select “Install the software automatically (Recommended)” and click “Next”.

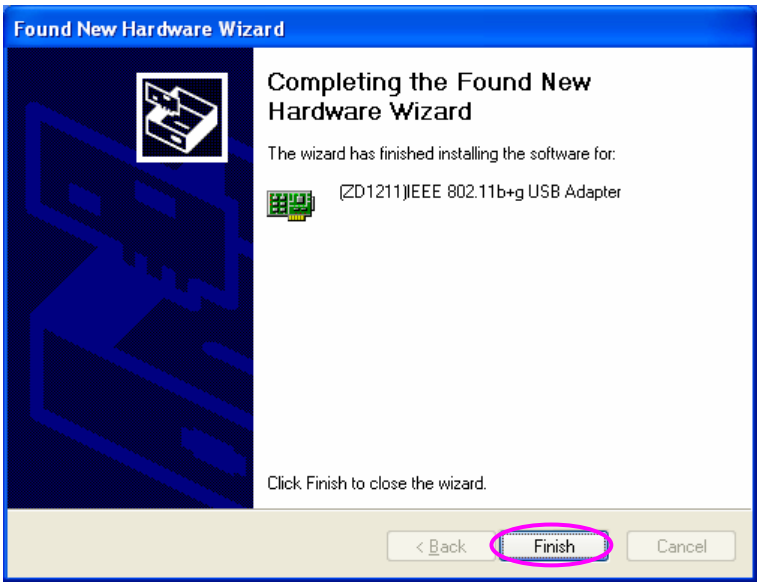

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
(ZD1211)IEEE 802.11b+g USB Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

C. Click “Continue Anyway” and the system will start to install the USB adapter.


Hardware Installation
The software you are installing for this hardware:
(ZD1211)IEEE 802.11b+g USB Adapter
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation



D. Click “Finish” to complete the installation.


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
(ZD1211)IEEE 802.11b+g USB Adapter
Click Finish to close the wizard.
< Back
Finish
Cancel

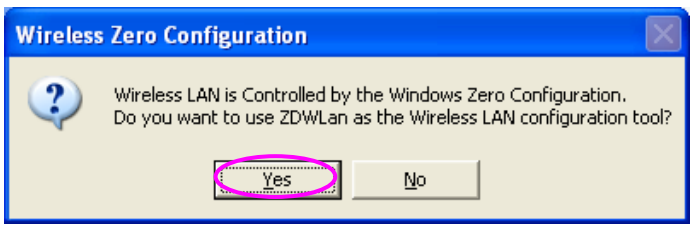
III. Using the Configuration Utility

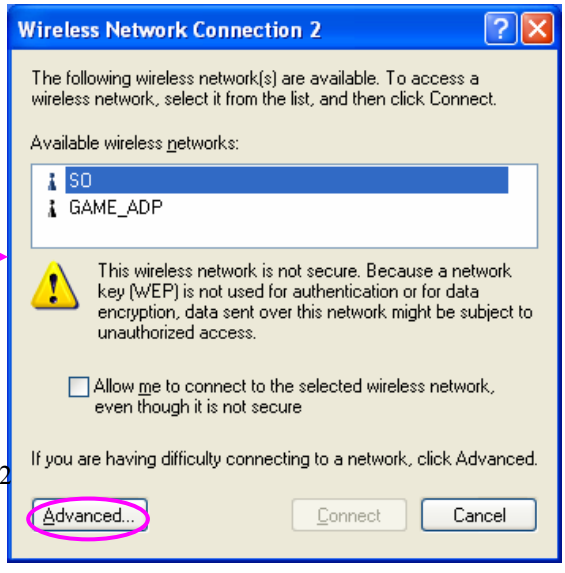
To setup the USB adapter, double-click the icon in the system tray.

For Windows XP, there is a “Windows Zero Configuration Tool” by default for you to setup wireless clients. If you want to use the Hawking Utility of the USB adapter, please follow one of the ways as below. The Hawking Utility may provide more detailed features and options to adjust the adapter with.

First Method

A. Double-click the utility icon in the system tray.
B. Click “Yes” to use the utility of the USB


Wireless Zero Configuration
Wireless LAN is Controlled by the Windows Zero Configuration.
Do you want to use ZDWLan as the Wireless LAN configuration tool?
Yes
No


Wireless Network Connection 2
The following wireless network(s) are available. To access a wireless network, select it from the list, and then click Connect.
Available wireless networks:
SO
GAME_ADP
This wireless network is not secure. Because a network key (WEP) is not used for authentication or for data encryption, data sent over this network might be subject to unauthorized access.
Allow me to connect to the selected wireless network, even though it is not secure
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

3 Configuration Utility

The Configuration Utility is a powerful application that helps you configure the Hawking Technologies 802.11g Wireless LAN Mini USB Adapter and monitor the link status during the communication process.

The Configuration Utility appears as an icon on the system tray of Windows while the card is running. You can open it by double-clicking the icon.

Right click the icon, there are some items for you to operate the configuration utility.

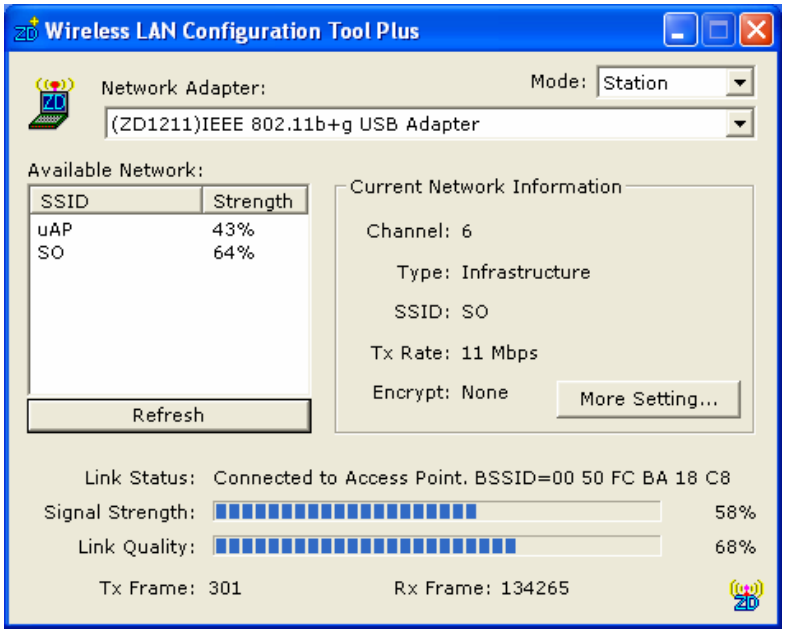
- Open Utility Window
  Select “Open Utility Window” to open the Configuration Utility tool.
- Exit ZDWlan
  Select “Exit ZDWlan” to close the Configuration Utility tool.

Before using the utility, you have to know some restrictions of the utility.

1. If you want to connect to an 11g (up to 54Mbps) network, please ensure to install the adapter to a PC or laptop with an available USB 2.0 interface. This adapter is backwards compatible with USB 1.1 or USB 1.0 interfaces, however due to the performance limitations of legacy interfaces the adapter cannot perform at its optimal level.
2. Under Ad-Hoc mode the adapter works in 802.11b mode only. This is a rule defined by the WiFi Organization. If you want to enable the data rate up to 54Mbps (11g), please follow the steps listed below.
   A. Go to “Network Connections”.
   B. Right Click the “Wireless Network Connection” and select “Properties”.
   C. From the pop-up screen, click “Configure”.
   D. Enter into “Advanced” page of the “Properties” screen.
   E. Enable the setting of “IBSS_G_Mode”.

1.4 Wireless Connection Status

When you open the Configuration Utility, the system will scan all channels to find the access points/stations within the accessible range of your card and automatically connect to the wireless device with the highest signal strength. From this screen, you can find details and information on the wireless networks in your environment.



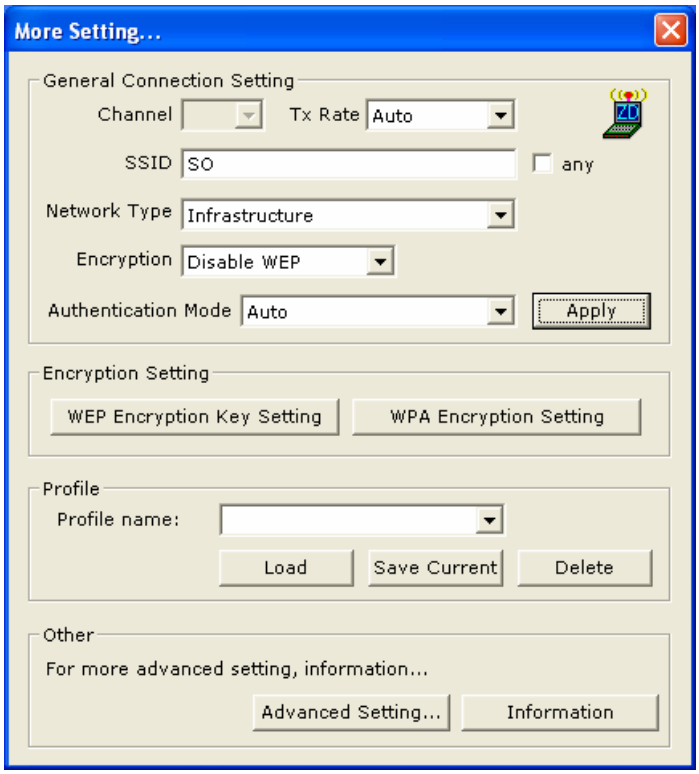
Parameter	Description
Mode	**Station** – Set the USB adapter as a wireless client. **Access Point** – Allows the USB adapter to function as a wireless AP. Please refer to Section 3.5 for the AP settings.
Network Adapter	Displays the product information of the USB Adapter.
Available Network	Display all the SSID and Signal Strength of wireless stations nearby. To re-survey the available wireless devices please click “Refresh”. There are two ways to automatically make a connection between the USB Adapter and a wireless station on the list. 1. Double-click the wireless station on the list directly. 2. Select the station you intend to connect to and then click “Connect this site“.
Current Network Information	Display the information about the wireless network this adapter is connecting to. The information includes Channel, Type, SSID, TX Rate and Encryption settings. Note: Please refer to Section 3.2 for the description of each item.
More Setting	For setting more functions including disable/enable WEP and Power Saving Mode, etc. Please refer to Section 3.2, 3.3 and 3.4.
Link Status	Displays the status of the wireless connection.

BSSID	Display the MAC Address of the network the adapter is connecting to.

Parameter	Description
Signal Strength	This bar shows the signal strength level. The higher percentage shown in the bar, the more radio signal been received by the adapter. This indicator helps to find the proper position of the wireless station for quality network operation.
Link Quality	This bar indicates the quality of the link. The higher the percentage, the better the quality.
TX Frame	It shows the number of data frames which are transmitted by the adapter successfully.
RX Frame	It shows the number of data frames which are received by the adapter successfully.

1.5 General Connection Setting

Clicking “More Settings”, allows users to setup more advanced features, such as wireless connection settings, Encryption Settings of the USB adapter and other functions.



Parameter	Description

General Connection Setting	
Channel	Selects the radio channel to be used for wireless networking. The channel setting of the wireless stations within a network should be the same.

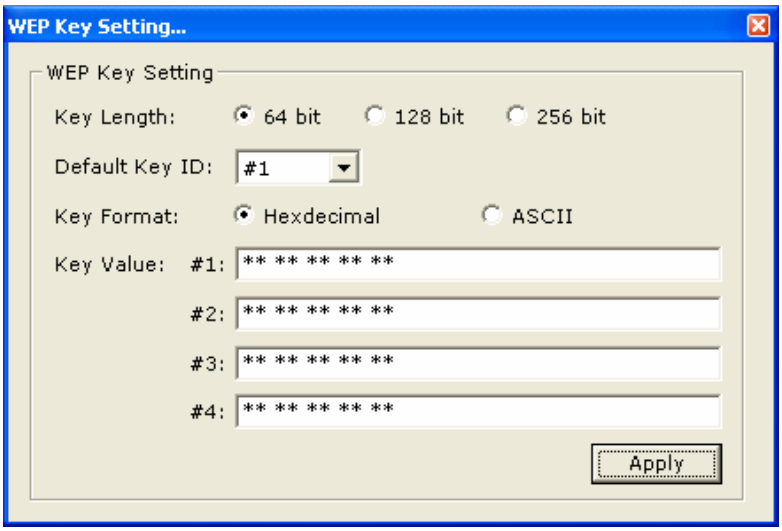
Parameter	Description
Tx Rate	There are several options including Auto/1/2/5.5/11/6/9/12/18/24/36/48/54Mbps for you to select. When the “Auto” is selected, the device will choose the most suitable transmission rate automatically. The higher data rate you designated in the network, the shorter distance is allowed between the adapter and the wireless stations. When the adapter works in 11b mode, the maximum data rate is 11Mbps so that there are only “Auto/1/2/5.5/11Mbps” options you can select.
SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.
Any	If “Any“ check box is enabled, the adapter will survey and connect to one of the available wireless stations without checking the consistency of channel and SSID with the wireless station.
Network Type	**Ad-Hoc** – This mode enables wireless network adapters to connect without use of an AP or Router. Select this mode if there is no AP or Router in the network. **Infrastructure** – This operation mode requires the presence of an 802.11 Access Point. All communication is done via the Access Point or Router.
Change/Apply	Clicking “Change/Apply“ will allow the configuration of the parameters in the “General Connection Setting“ tab. Clicking Apply will confirm and enable the adjusted settings.
Encryption Setting	In this block, users may enable/disable WEP and WPA encryption within the network. Please refer to Section 3.3 for a more detailed description.

Parameter		Description
Authentication Mode		This setting must be consistent with the wireless networks that the adapter intends to connect with. **Open System** – No authentication is required **Shared Key** – Only wireless stations using a shared key (WEP Key identified) are allowed to connect with each other. **Auto** – Auto switch the authentication algorithm depending on the wireless networks that the adapter is connecting to.
WEP Encryption Key Setting		Click this button to setup the WEP key. Please refer to Section 3.3 for details.
WPA Encryption Setting		Click this button to setup the WPA function. Please refer to Section 3.3 for details.
Profile		
	Profile Name	You can save the current network settings as a profile. To connect to the network without making additional configuration, you can load the profile at a later time.
	Load	Load the setting values from the file in the “Profile Name“ list. The new settings will be activated immediately.
	Save Current	Input a file name and click “Save Current“ to write the current setting values to be a profile in the “Profile Name“ list.
	Delete	Delete the profile you selected.
Other		
	Advanced Setting...	For more advanced setting, please click it. To know more of the setting, please refer to Section 3.4.
	Information	To view the version of the driver, firmware and the MAC Address of the adapter, click this button.

1.6 WEP and WPA Encryption

WEP is a data encryption algorithm, which protects Wireless networks from outside intruders or “eavesdropping.” The second generation of WEP is WPA (Wi-Fi Protected Access) which combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. WPA provides higher security standards as well as the ability to authenticate each individual user for a more controlled and secure wireless environment. The shared security key is more secure than previous standards with WPA by using a method that enables the switching of security keys. This adapter is equipped with a built-in AES engine which ensure the highest degree of security and authenticity for digital information and is the most advanced solution defined by IEEE 802.11i organization for security within wireless networks.

3.1.1 WEP Setting



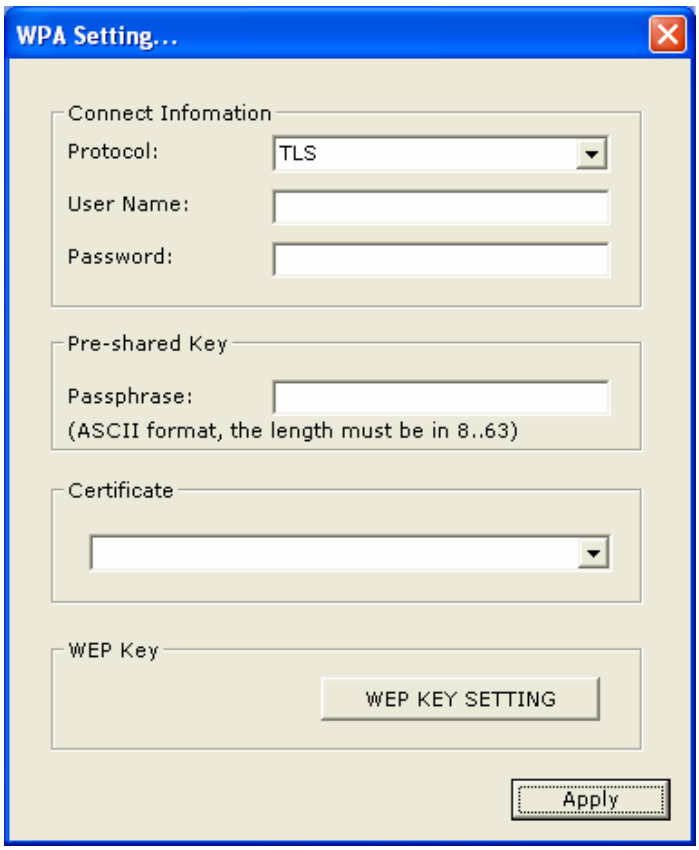
Parameter	Description
Key Length	You may select the 64-bit, 128-bit or 256-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.
Default Key ID	Select one of the keys (1~4) as the encryption key.
Key Format	**Hexdecimal** – Only characters in these ranges: “A-F“, “a-f“ and “0-9“ are allowed to be set as WEP key. **ASCII** –Numerical values, characters or signs are allowed to be the WEP key. It is more recognizable for user.

Parameter	Description
Key1 ~ Key4	The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below. **64-bit** – Input 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: “0123456aef“ or “Guest“. **128-bit** – Input 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: “01234567890123456789abcdef“ or “administrator“. **256-bit** – Input 58-digit Hex values or 29-digit ASCII values as the encryption keys.
Change/Apply	Clicking “Change“ will enable you to setup the WEP key. In the meantime, the button will change to “Apply“ for you to confirm your settings.

3.1.2 WPA Setting

The adapter can automatically detect the WPA settings of the AP which the adapter intends to connect to. To connect to the AP, you should match the same settings with the AP and the client.

There are two kinds of WPA modes: WPA and WPA-PSK. WPA mode is designed for enterprise working environments, such as large corporations, which require a RADIUS Server and Certificate Server for user authentication. WPA-PSK is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, the user manually enters the starting password in their access point or gateway, as well as in each wireless station in the network. WPA takes over automatically from that point, keeping unauthorized users that don't have the matching password from joining the network, while encrypting the data traveling between authorized devices.



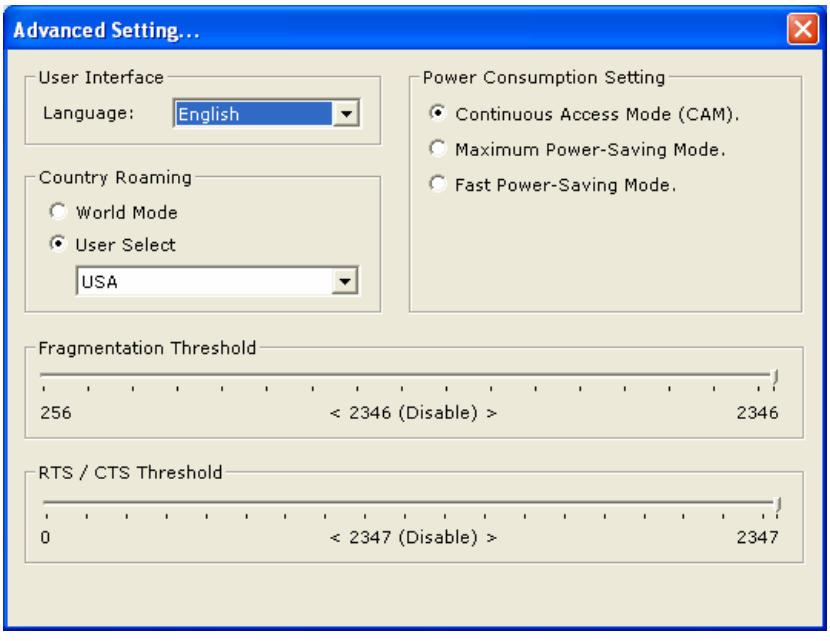
Parameter	Description
Connect Information	It is the setting for WPA mode.
Protocol	This adapter supports two kind of protocol for authentication including TLS and PEAP. TLS and PEAP requires a certificate which is provided by the Certificate Server. PEAP requires a set of user name and password in addition. To get the certificate and the personal user name and password, please contact with your administrator. **TLS** – Select a certificate from the “Certificate“ list. **PEAP** – Input the “User Name“ and “Password“ and also select a certificate from the “Certificate“ list.
User Name	It is the setting for PEAP protocol.
Password	It is the setting for PEAP protocol.

Pre-shared Key	It is the setting for WPA-PSK mode. Input a key that is 8 to 63 digits in length using ASCII format as the password for the authentication within the network.
Certificate	All the available certificates for TLS or PEAP will display in the list. Please select a proper certificate for wireless authentication.

Parameter	Description
WEP Key	If the AP uses WEP data encryption function, please clcik “WEP KEY SETTING“ to setup the WEP key.
WEP KEY SETTING	Setup the four sets of WEP key by clicking the button.
Change/Apply	Clicking “Change“ will enable you to setup the WPA setting. In the meantime, the button will change to “Apply“ for you to confirm your settings.

1.7 Advanced Setting

The “Advanced Setting” allows user to enable/disable country roaming and power consumption mode, setup the fragmentation threshold and RTS/CTS threshold of the adapter.



Parameter	Description
User Interface	Select the display language of the utility. Two languages are

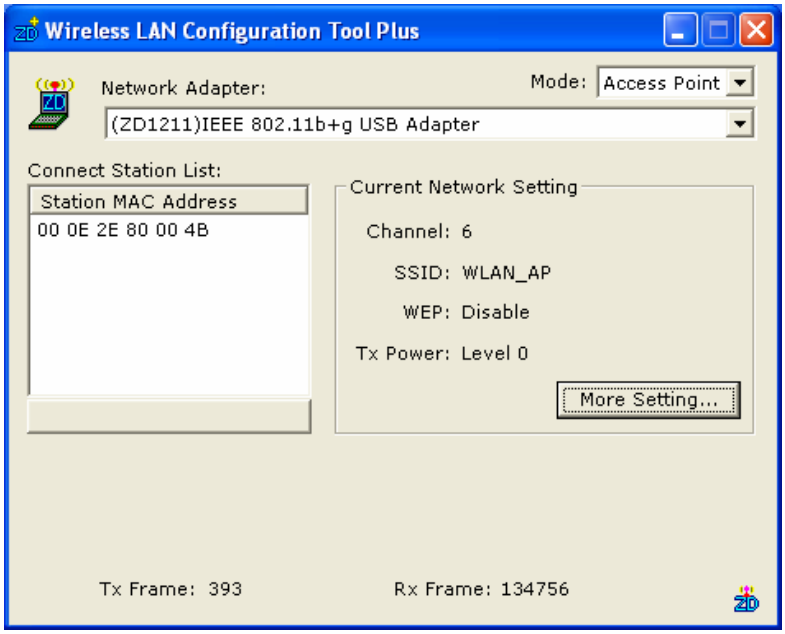
	enabled: English and Chinese.
Country Roaming	IEEE 802.11d (Country Roaming) is a standard that enable the wireless devices work at the proper transmission power and radio channel regulated by the country where the user is located. **World Mode** – Enable the country roaming function, the adapter will follow the setting of the connecting AP automatically. **User Select** – Disable the country roaming function, users can select the country where they are located. The channel setting differs depending on the country selected.

Parameter	Description
Power Consumption Setting	**Continuous Access Mode (CAM)** – The adapter will always be set in active mode. **Maximum Power-Saving Mode** – The adapter will enter power save mode when idle. **Fast Power-Saving Mode –** The adapter will enter power save mode however not all components will be idle. When reactivated the revival time is more rapid than in “Max Power Save Mode.” The power consumed will be slightly more than in “Max Power Save Mode.”
Fragmentation Threshold	This value defines the maximum size of packets transferred to and from the adapter. Any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended.
RTS / CTS Threshold	Minimum packet size required for an RTS/CTS (Request To Send/Clear to Send). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the WLAN. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended

1.8 Software AP Mode

The HWU54G USB Wireless-G adapter has a unique feature that allows it to function as a Wireless Access Point. By changing the mode in the Configuration Utility the HWU54G can provide wireless access to surrounding clients. Configuring the AP parameters such as channel, SSID, MAC Address Filtering, WEP encryption and so on are described in the following:

3.1.3 AP Connection Status

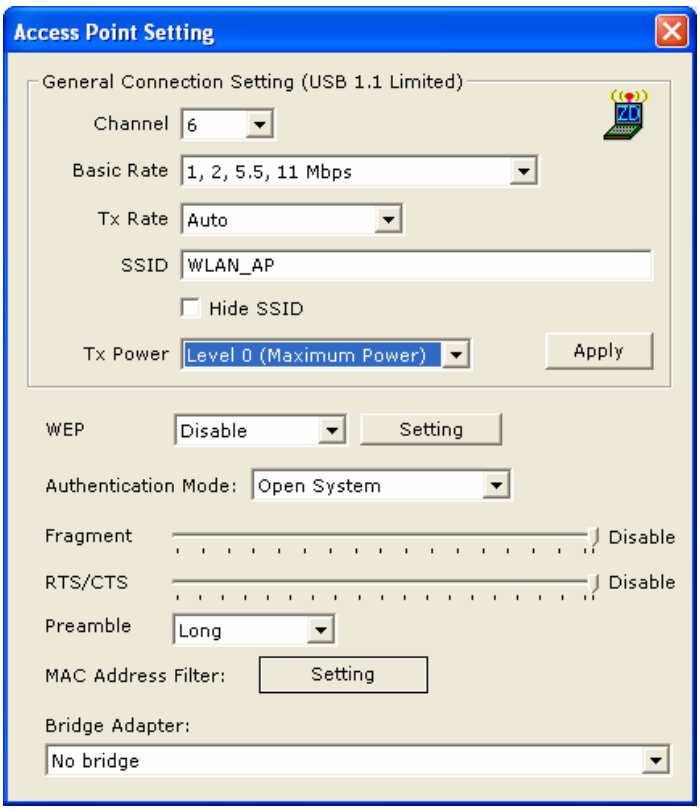


Parameter	Description
Mode	**Station** – Set the USB adapter a wireless client. **Access Point** – Turns the USB adapter to function as a wireless AP.
Network Adapter	Display the product information of the USB Adapter.
Connect Station List	Display all the MAC Addresses of the wireless adapters which are connecting to the AP.
Current Network Setting	Display the connection setting of the current network. It includes Channel, SSID, WEP and TX Power Level.
More Setting	For setting more functions including disable/enable WEP, MAC Address Filter and Bridge Adapter, etc. Please refer to Section 3.5.2.
TX Frame	It shows the number of data frames which are transmitted by

	the AP successfully.
RX Frame	It shows the number of data frames which are received by the AP successfully.

3.1.4 AP General Connection Setting

Click “More Setting”, users are allowed to setup the AP connection setting, Encryption Setting and other advanced functions.



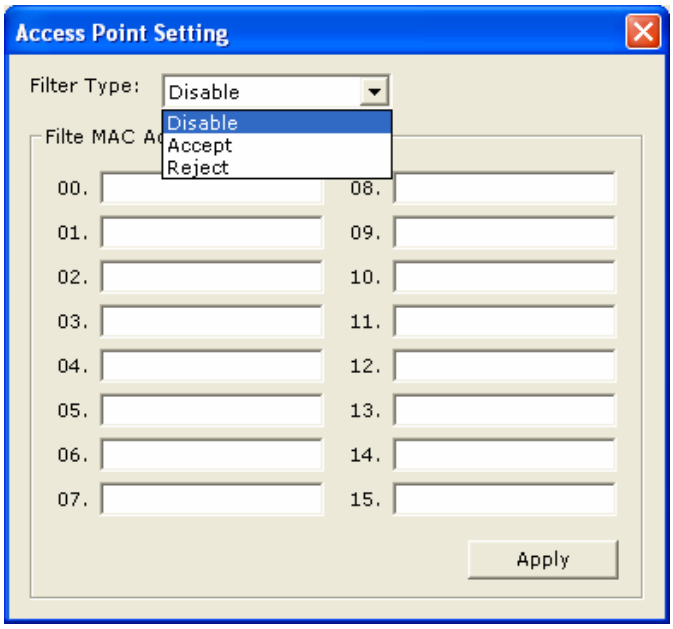
Parameter	Description
General Connection Setting	
Channel	Select the number of the radio channel used by the AP. The wireless adapters which connects to the AP should have the same channel to function correctly.
Basic Rate	Select the basic data transmission speed supported by the AP. When the AP works in 11b mode, the maximum data rate is 11Mbps so that there are two options including “1, 2 Mbps“ and “1, 2, 5.5, 11Mbps” you can select.

Parameter		Description
	Tx Rate	There are several options including Auto/1/2/5.5/11/6/9/12/18/24/36/48/54Mbps for you to select. When “Auto” is selected, the device will choose the most suitable transmission rate automatically. The higher data rate you designate for the network, the shorter the distance is allowed between the adapter and the wireless stations. When the adapter works in 11b mode, the maximum data rate is 11Mbps so the only selection will be “Auto/1/2/5.5/11Mbps”
	SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. The default SSID of the AP is WLAN_AP. Wireless adapters connect to the AP should set up the same SSID as the AP.
	Hide SSID	If the “Hide SSID“ check box is enabled, the AP will not appear in the site survey list of any wireless adapters. Wireless adapters will have to manual set their SSIDs to match that of the HWU54G in order to connect.
	Tx Power	There are four levels for you to setup the transmission power of the AP. The higher transmission power, the larger transmission distance and wireless coverage.
	Change/Apply	Clicking “Change“ will enable you to setup the parameters for “General Connection Setting“. After you have adjusted your settings, the button will change to “Apply“ for you to confirm your settings.
WEP		Enable or disable WEP encryption function. If the WEP function is enabled, only wireless adapters with the same default key and WEP key setting can connect to the AP.
Setting		Click “Setting“ to setup the WEP key. Please refer to Section 3.3 for more description.

Authentication Mode	**Open System** – No authentication is needed for connecting to the AP. **Shared Key** – Only wireless adapters using a shared key (WEP Key identified) are allowed to connect to the AP.

Parameter	Description
Fragment	The value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended.
RTS / CTS	Minimum packet size required for an RTS/CTS (Request To Send/Clear to Send). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the WLAN. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended.
Preamble	The preamble defines the length of the CRC block for communication among the wireless networks. There are two modes including Long and Short. High network traffic areas should use the shorter preamble type.
MAC Address Filter	This AP can protect from the unauthorized users by MAC Address filtering. Please refer to Section 3.5.3.
Bridge Adapter	Wireless adapters connect to the AP can access to the wired network through the bridge adapter. You can select an Ethernet adapter in the list be the bridge between the wireless and wired networks.

3.1.5 MAC Address Filter



Parameter	Description
Filter Type	**Disable** – Disable the MAC Address filter function. **Accept** – Only the wireless adapters with the MAC Address setup in the table can connect to the AP. **Reject** – The wireless adapters with the MAC Address setup in the table will be rejected to connect to the AP.
Filter MAC Address	MAC Address is a unique identification for hardware devices in the network. It is a 12-digit hexadecimal values. There are fifty sets of MAC Address can setup in the table. Fill the MAC Addresses of wireless adapters you want to accept or reject to access the AP in this table.

4 Troubleshooting

This chapter provides solutions to problems usually encountered during the installation and operation of the adapter.

1. What is the IEEE 802.11g standard?

802.11g is the new IEEE standard for high-speed wireless LAN communications that provides for up to 54 Mbps data rate in the 2.4 GHz band. 802.11g is quickly becoming the next mainstream wireless LAN technology for the home, office and public networks.

802.11g defines the use of the same OFDM modulation technique specified in IEEE 802.11a for the 5 GHz frequency band and applies it in the same 2.4 GHz frequency band as IEEE 802.11b. The 802.11g standard requires backward compatibility with 802.11b.

The standard specifically calls for:

A. A new physical layer for the 802.11 Medium Access Control (MAC) in the 2.4 GHz frequency band, known as the extended rate PHY (ERP). The ERP adds OFDM as a mandatory new coding scheme for 6, 12 and 24 Mbps (mandatory speeds), and 18, 36, 48 and 54 Mbps (optional speeds). The ERP includes the modulation schemes found in 802.11b including CCK for 11 and 5.5 Mbps and Barker code modulation for 2 and 1 Mbps.

B. A protection mechanism called RTS/CTS that governs how 802.11g devices and 802.11b devices interoperate.

2. What is the IEEE 802.11b standard ?

The IEEE 802.11b Wireless LAN standard subcommittee, which formulates the standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate successfully and efficiently.

3. What does IEEE 802.11 feature support ?

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge Protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS Feature
- Fragmentation
- Power Management

4. What is Ad-hoc ?

An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

5. What is Infrastructure ?

An integrated wireless and wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

6. What is BSS ID ?

A specific Ad hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

7. What is WEP ?

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802 .11 standard.

8. What is TKIP?

TKIP is a quick-fix method to quickly overcome the inherent weaknesses in WEP security, especially the reuse of encryption keys. TKIP is involved in the IEEE 802.11i WLAN security standard, and the specification might be officially released by early 2003.

9. What is AES?

AES (Advanced Encryption Standard), a chip-based security, has been developed to ensure the highest degree of security and authenticity for digital information, wherever and however communicated or stored, while making more efficient use of hardware and/or software than previous encryption standards. It is also included in IEEE 802.11i standard. Compare with AES, TKIP is a temporary protocol for replacing WEP security until manufacturers implement AES at the hardware level.

10. Can Wireless products support printer sharing ?

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows 2000, or other LAN operating systems to support printer or file sharing.

11. Would the information be intercepted while transmitting on air ?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

12. What is DSSS？What is FHSS？And what are their differences？

Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip is, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without-the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

13. What is Spread Spectrum？

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum ectrum (FHSS).